**AMENDMENT TRANSMITTAL****PATENT**

Application No.: 10/020,388  
Filing Date: December 14, 2001  
First Named Inventor: William Salkewicz  
Examiner's Name: Thong H. Vu  
Art Unit: 2142  
Attorney Docket No.: 004906.P001D

- ☐ An Amendment After Final Action (37 CFR 1.116) is attached and applicant(s) request expedited action.
- ☒ Charge any fee not covered by any check submitted to Deposit Account No. 02-2666.
- ☒ Applicant(s) hereby request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 CFR 1.16 and 1.17, for any concurrent or future reply to Deposit Account No. 02-2666.
- ☐ Applicant(s) claim small entity status (37 CFR 1.27).

**ATTACHMENTS**

- ☐ Preliminary Amendment
- ☒ Amendment/Response with respect to Office Action
- ☐ Amendment/Response After Final Action (37 CFR 1.116) (reminder: consider filing a Notice of Appeal)
- ☐ Notice of Appeal
- ☒ RCE (Request for Continued Examination)
- ☐ Supplemental Declaration
- ☐ Terminal Disclaimer (reminder: if executed by an attorney, the attorney must be properly of record)
- ☒ Information Disclosure Statement (IDS)
- ☒ Copies of IDS citations
- ☒ Petition for Extension of Time
- ☒ Fee Transmittal Document (that includes a fee calculation based on the type and number of claims)
- ☐ Cross-Reference to Related Application(s)
- ☐ Certified Copy of Priority Document
- ☐ Other: \_\_\_\_\_
- ☐ Other: \_\_\_\_\_
- ☒ Check(s)
- ☒ Postcard (Return Receipt)

**SUBMITTED BY:**

BLAKELY SOKOLOFF TAYLOR &amp; ZAFMAN LLP

TYPED OR PRINTED NAME: Eric S. ReplogleSIGNATURE: REG. NO.: 52,161DATE: May 8, 2006ADDRESS: 12400 Wilshire Boulevard, Seventh FloorLos Angeles, California 90025TELEPHONE NO.: (408) 720-8300**CERTIFICATE OF MAILING BY FIRST CLASS MAIL (if applicable)**

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(10/14/03)

**FEE TRANSMITTAL FOR FY 2005**

Effective on 12/08/2004. Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

**TOTAL AMOUNT OF PAYMENT (\$)** 1360.00

Complete if Known:

Application No. 10/020,388  
Filing Date December 14, 2001  
First Named Inventor William Salkewicz  
Examiner Name Thong H. Vu  
Art Unit 2142  
Attorney Docket No. 004906.P001D

         Applicant claims small entity status. See 37 CFR 1.27.**METHOD OF PAYMENT** (check all that apply)☒ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify)         Deposit AccountDeposit Account Number : 02-2666Deposit Account Name:                     ☒ The Director is Authorized to do the following with respect to the above-identified Deposit Account:☐ Charge fee(s) indicated below.☒ Charge any additional fee(s) or underpayment of fee(s) during the pendency of this application.☐ Charge fee(s) indicated below except for the filing fee☒ Credit any overpayments.☒ Any concurrent or future reply that requires a petition for extension of time should be treated as incorporating an appropriate petition for extension of time and all required fees should be charged.

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**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Large Entity		Small Entity		Fee Description		Fees Paid (\$)
Fee Code	Fee (\$)	Fee Code	Fee (\$)			
1011	300	2011	150	Utility application filing fee	} 1,000/500	_____
1111	500	2111	250	Utility search fee		_____
1311	200	2311	100	Utility examination fee		_____
1012	200	2012	100	Design application filing fee	} 430/215	_____
1112	100	2112	50	Design search fee		_____
1312	130	2312	65	Design examination fee		_____
1013	200	2013	100	Plant filing fee	} 660/330	_____
1113	300	2113	150	Plant search fee		_____
1313	160	2313	80	Plant examination fee		_____
1004	300	2004	150	Reissue filing fee	} 1,400/700	_____
1114	500	2114	250	Reissue search fee		_____
1314	600	2314	300	Reissue examination fee		_____
1005	200	2005	100	Provisional application filing fee		_____
SUBTOTAL (1)						<u>\$0.00</u>

**2. EXCESS CLAIM FEES**

		<u>Extra Claims</u>	<u>Fee from</u> <u>below</u>	<u>Fees Paid (\$)</u>
<b>Total Claims</b>	<u>11</u>	<b>- 26 or HP =</b> <u>0</u>	X <u>\$50.00</u>	= <u>0</u>
HP = highest number of total claims paid for, if greater than 20				
<b>Independent Claims</b>	<u>4</u>	<b>- 4 or HP =</b> <u>0</u>	X <u>\$200.00</u>	= <u>0</u>
HP = highest number of independent claims paid for, if greater than 3				
<b>Multiple Dependent Claims</b>				= <u>        </u>

<u>Large Entity</u>		<u>Small Entity</u>		
<u>Fee</u>	<u>Fee</u>	<u>Fee</u>	<u>Fee</u>	
<u>Code</u>	<u>(\$)</u>	<u>Code</u>	<u>(\$)</u>	<u>Fee Description</u>
1202	50	2202	25	Each claim over 20
1201	200	2201	100	Each independent claim over 3
1203	360	2203	180	Multiple dependent claims, if not paid
1204	200	2204	100	Reissue: each claim over 20 and more than in the original patent
1205	50	2205	25	Reissue: each independent claim more than in the original patent

**SUBTOTAL (2) \$ 0.00**

**3. APPLICATION SIZE FEE**

If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

<u>Total Sheets</u>	<u>Extra Sheets</u>	<u>Number of each add'l</u> <u>50 or fraction thereof</u>	<u>Fee from</u> <u>below</u>	<u>Fees paid (\$)</u>
<u>        </u>	- 100 = <u>        </u>	/ 50 = <u>        </u> (round up to whole number)	X <u>\$250.00</u>	<u>        </u>

<u>Large Entity</u>		<u>Small Entity</u>		
<u>Fee</u>	<u>Fee</u>	<u>Fee</u>	<u>Fee</u>	
<u>Code</u>	<u>(\$)</u>	<u>Code</u>	<u>(\$)</u>	<u>Fee Description: Application size fee for each additional group of 50 sheets</u> <u>beyond initial 100 sheets (count spec &amp; drawings except sequences &amp; program listings):</u>
1081	250	2081	125	Utility
1082	250	2082	125	Design
1083	250	2083	125	Plant
1084	250	2084	125	Reissue

**SUBTOTAL (3) \$ 0.00**

**FEE CALCULATION (continued)****4. OTHER FEE(S)**

				<b>Fees Paid (\$)</b>	
Non-English Specification, \$130 fee (no small entity discount)					
<u>Large Entity</u>		<u>Small Entity</u>			
Fee Code	Fee (\$)	Fee Code	Fee (\$)	Fee Description	
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for ex parte reexamination	
1813	8,800	1813	8,800	Request for inter parties reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	120	2251	60	Extension for reply within first month	
1252	450	2252	225	Extension for reply within second month	
1253	1,020	2253	510	Extension for reply within third month	\$570.00
1254	1,590	2254	795	Extension for reply within fourth month	
1255	2,160	2255	1,080	Extension for reply within fifth month	
1401	500	2401	250	Notice of Appeal	
1402	500	2402	250	Filing a brief in support of an appeal	
1403	1,000	2403	500	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	500	2452	250	Petition to revive - unavoidable	
1453	1,500	2453	750	Petition to revive - unintentional	
1501	1,400	2501	700	Utility issue fee (or reissue)	
1502	800	2502	400	Design issue fee	
1503	1100	2503	550	Plant issue fee	
1462	400	1462	400	Petitions to the Commissioner (CFR 1.17(f) Group I)	
1463	200	1463	200	Petitions to the Commissioner (CFR 1.17(g) Group II)	
1464	130	1464	130	Petitions to the Commissioner (CFR 1.17(h) Group III)	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	For filing a submission after final rejection (see 37 CFR 1.129(a))	
1814	130	2814	65	Statutory Disclaimer	
1810	790	2810	395	For each additional invention to be examined (see 37 CFR 1.129(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	\$790.00
1802	900	1802	900	Request for expedited examination of a design application	
1504	300	1504	300	Publication fee for early, voluntary, or normal pub.	
1505	300	1505	300	Publication fee for republication	
1803	130	1803	130	Request for voluntary publication or republication	
1808	130	1808	130	Processing fee under 37 CFR 1.17(i) (except provisionals)	
1454	1,370	1454	1,370	Acceptance of unintentionally delayed claim for priority	
Other fee (specify) _____					
Other fee (specify) _____					
				<b>SUBTOTAL (4)</b>	<b>\$1360.00</b>

\*Reduced by Basic Filing Fee Paid

**SUBMITTED BY:**Typed or Printed Name: Eric S. ReplogleSignature: Date: May 8, 2006Reg. Number: 52,161Telephone Number: 408-720-8300

Send to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450



Attorney's Docket No.: 004906.P001D

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re Application of:

William Salkewicz

Application No.: 10/020,388

Filed: December 14, 2001

For: Dynamic Binding of Network Services

Examiner: Thong H. Vu

Art Unit: 2142

Confirmation No.: 4901

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Correspondence

Applicant previously submitted a response to the Final Office Action along with a two month extension of time. A check in the amount of \$450.00 (check number 4822) was submitted at that time. Applicant mistakenly filed the response omitting the request for an RCE.

Please find a copy of the previously filed response and a request for an RCE are included herewith. Photocopies of the previously submitted extension of time and check are also included.

Therefore, Applicant is submitting with the RCE and additional extension of time fee and requests that the previously paid extension of time fee be applied to this submission.

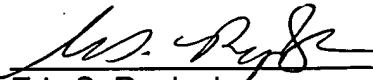
Please charge any shortages and credit any overages to our Deposit Account

No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Dated: May 8, 2006

  
Eric S. Replogle  
Reg. No.: 52,161

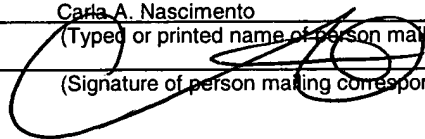
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5.8.06  
(Date of Deposit)

Carla A. Nascimento

(Typed or printed name of person mailing correspondence)

  
(Signature of person mailing correspondence)

**BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP**  
1279 OAKMEAD PARKWAY  
SUNNYVALE, CA 94085-4040  
(408) 720-8598

4822

18-339/1220  
380

May 5, 2006

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⑈004822⑈ ⑆122003396⑆ 3800125371⑈

**BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP**

4822

05/05/2006 ac - Additional claims filing fee & 2 month extension of time  
In re Application of: WILLIAM SALKEWICZ  
For: Dynamic Binding of Network Services  
Serial No.: 10/020,388  
Filed: December 14, 2001  
004906.P001D DMD/HHB/ESR/alg  
Redback Networks Inc.

2,250.00

**BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP**

4822

Attorney's Docket No.: 004906.P001D

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



In Re Application of:

William Salkewicz

Application No.: 10/020,388

Filed: December 14, 2001

For: Dynamic Binding Of Network Services

Examiner: Thong H. Vu

Art Unit: 2142

Confirmation No.: 4901

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

PETITION FOR EXTENSION OF TIME PURSUANT TO 37 C.F.R. § 1.136 (a)

Sir:


Applicant respectfully petitions pursuant to 37 CFR 1.136(a) for a two month extension of time to file this response to the Office Action mailed December 5, 2005. The extended period is set to expire on May 5, 2006. A check in the amount of \$450.00 is enclosed to cover the fee for a two month extension of time.

Please charge any shortages and credit any overages to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Dated: 5/5/06

  
Eric S. Replogle  
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May 5, 2006

(Date of Deposit)

Alma Goldchain

(Typed or printed name of person mailing correspondence)

  
(Signature of person mailing correspondence)

5/5/06





Attorney Docket No. 4906.P001D

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE THE

APPLICATION OF: William Salkewicz

ART UNIT: 2142

APPLICATION No.: 10/020,388

EXAMINER: Thong H. Vu

FILED: December 14, 2001

CONFIRMATION No. 4901

TITLE: DYNAMIC BINDING OF  
NETWORK SERVICES

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE TO OFFICE ACTION**

In response to the Office Action mailed December 5, 2005, in connection with the above referenced patent application, reconsideration in view of the following remarks is respectfully requested.

1

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(Date of Deposit)

Alma Goldchain

(Printed name)

Alma Goldchain

(Signature)

(Date)

5/5/06

## CLAIMS

Claims 6-30 remain in the application. No claims have been amended, canceled or added.

### *Listing of Claims:*

- 1 – 5. (Canceled).
6. (Currently Amended) A network device comprising:
- at least one processor;
  - memory;
  - I/O; and
  - at least one virtual ~~network-machine~~ router in the memory, said at least one first virtual ~~network-machine~~ router including a first network interface;
  - a first sub-interface data structure in the memory; and
  - a first binding data structure in the memory which binds the first network interface to the first sub-interface data structure.
7. (Original) The network device of claim 6 wherein,
- the first network interface is a layer 3 network interface;
  - the first sub-interface data structure is a layer 2 interface data structure; and

the first binding data structure is layer 2/3 binding structure which binds the first layer 3 network interface to the layer 2 interface data structure.

8. (Currently Amended) An electronic memory encoded with:  
at least one virtual ~~network-machine~~ router, said at least one first virtual ~~network-machine~~ router including a first network interface;  
a first sub-interface data structure; and  
a first binding data structure which binds the first network interface to the first sub-interface data structure.

9. (Original) The electronic memory of claim 8 wherein:  
the first network interface is a layer 3 network interface;  
the first sub-interface data structure is a layer 2 interface data structure; and  
the first binding data structure is a layer 2/3 binding data structure which binds the first layer 3 interface to the first layer 2 interface data structure.

10. (Currently Amended) A method of creating a link in at least one network domain comprising:  
providing a network device including an electronic memory encoded with at least one virtual ~~network-machine~~ router which includes at least one network interface;  
providing at least one sub-interface data structure encoded in the electronic memory; and

binding the at least one network interface to the at least one sub-interface data structure.

11. (Original) The method of claim 10 wherein binding includes creating a binding data structure that binds the at least one network interface to the at least one sub-interface data structure.
12. (Original) The method of claim 10 further comprising:  
providing at least one other network interface encoded in the electronic memory;  
and  
binding the at least one other network interface to the at least one sub-interface data structure.
13. (Original) The method of claim 12 further including:  
eliminating the binding of the at least one network interface to the at least one sub-interface data structure.
14. (Original) The method of claim 10 further comprising:  
providing at least one other sub-interface data structure encoded in the electronic memory; and  
binding the at least one network interface to the at least one other sub-interface data structure.

15. (Original) The method of claim 14 further including:

eliminating the binding of the at least one network interface to the at least one sub-interface data structure.

16. (Original) The method of claim 10,

wherein binding the at least one network interface to the at least one sub-interface data structure includes creating a binding data structure that binds the at least one network interface to the at least one sub-interface data structure; and further including:

providing at least one other network interface encoded in the electronic memory;

binding the at least one other network interface to the at least one sub-interface data structure;

wherein binding the at least one other network interface to the at least one sub-interface data structure includes creating a binding data structure that binds the at least one other network interface to the at least one sub-interface data structure; and

eliminating the binding of the at least one network interface to the at least one sub-interface data structure while leaving the at least one network interface intact.

17. (Original) The method of claim 10,

wherein binding the at least one network interface to the at least one sub-interface data structure includes creating a binding data structure that binds the at least one network interface to the at least one sub-interface data structure; and further including:

providing at least one other network interface encoded in the electronic memory;  
providing the at least one other sub-interface data structure encoded in electronic memory;

binding the at least one other network interface to the at least one other sub-interface data structure;

wherein binding the at least one network interface to the at least one other sub-interface data structure includes creating a binding data structure that binds the at least one network interface to the at least one other sub-interface data structure;

binding the at least one other network interface to the at least one other sub-interface data structure;

wherein binding the at least one other network interface to the at least one other sub-interface data structure includes creating a binding data structure that binds the at least one other network interface to the at least one other sub-interface data structure;

eliminating the binding of the at least one network interface to the at least one sub-interface data structure while leaving the at least one network interface intact.

18. (Currently Amended) A method of creating a link in a network domain comprising:

providing a network device including an electronic memory encoded with a first virtual ~~network-machine~~ router which includes at least one first network interface and with a second virtual ~~network-machine~~ router which includes at least one second network interface;

providing at least one first sub-interface data structure encoded in the electronic memory;

providing at least one second sub-interface data structure encoded in the electronic memory;

binding the at least one first network interface to the at least one first sub-interface data structure; and

binding the at least one second network interface to the at least one second sub-interface data structure.

19. (Original) The method of claim 18 wherein,

binding the at least one first network interface to the at least one first sub-interface data structure includes creating a first binding data structure; and

binding the at least one second network interface to the at least one second sub-interface data structure includes creating a second binding data structure.

20 (Original) The method of claim 18 further including:

binding the at least one second network interface to the at least one first sub-interface data structure; and

eliminating the binding of the at least one second network interface to the at least one second sub-interface data structure.

21. (Currently Amended) The method of claim 18 further including:

providing respective first and second network databases associated with the respective first and second virtual ~~network machines~~ routers wherein such respective first and second databases include one or more types of control information used to manage or monitor operations, selected from the group consisting of: network (layer 3) addressing, layer 3 connections, routing, routing protocols, route filters and policies, tunneling, tunneling protocols.

22. (Currently Amended) The method of claim 18 further including:

providing respective first and second network databases associated with the respective first and second virtual ~~network machines~~ routers wherein such respective first and second databases include control information used to manage or monitor operations, selected from the group consisting of: network (layer 3) addressing, layer 3 connections, routing, routing protocols, route filters and policies, tunneling, tunneling protocols;

binding the at least one first network interface to the at least one first sub-interface data structure includes creating a first binding data structure; and

binding the at least one second network interface to the at least one second sub-interface data structure includes creating a second binding data structure.

23. (Currently Amended) The method of claim 18 further including:

providing respective first and second network databases associated with the respective first and second virtual ~~network machines~~ routers wherein such respective first and second databases include one or more types of control information used to manage or



monitor operations, selected from the group consisting of: network (layer 3) addressing, layer 3 connections, routing, routing protocols, route filters and policies, tunneling, tunneling protocols;

binding the at least one first network interface to the at least one first sub-interface data structure includes creating a first binding data structure;

binding the at least one second network interface to the at least one second sub-interface data structure includes creating a second binding data structure;

binding the at least one second network interface to at least one first sub-interface data structure; and

eliminating the binding of the at least one second network interface to the at least one second sub-interface data structure.

24. (Currently Amended) A method of creating links between multiple subscriber end stations and multiple network domains comprising:

providing a network device including an electronic memory encoded with multiple respective virtual ~~network machines~~ routers, said respective virtual ~~network machines~~ routers including respective corresponding network databases which include respective control information, ~~that respectively imparts router functionality to corresponding respective virtual network machines~~; said respective virtual ~~network machines~~ routers respectively each including at least one respective network interface for a respective network domain;

providing respective subscriber records in an electronic memory that include respective information as to network domains to which respective subscriber end stations of respective subscribers may access;

providing multiple respective sub-interface data structures in the electronic memory respectively associated with respective subscribers;

searching respective subscriber records to identify respective network domains that may be accessed by a respective subscriber end station of a respective subscriber; and

creating respective binding data structures that respectively bind respective sub-interface data structures respectively associated with respective subscribers to respective network interfaces for respective network domains identified from searching respective subscriber records.

25. (Original) The method of claim 24 further including:

providing respective subscriber authentication information and respective subscriber authorization information in respective subscriber records;

providing subscriber authentication and authorization services; and

authenticating and authorizing subscriber access to respective network domains using respective subscriber records and the subscriber authentication and authorization services.

26. (Original) The method of claim 24 wherein,

the multiple respective sub-interface data structures include multiple respective virtual circuits.

27. (Original) The method of claim 24 further including:

providing in respective subscriber records multiple possible network domain binding options for a respective subscriber.

28. (Original) The method of claim 24 wherein,

information in respective subscriber records identify multiple respective possible network domains to which respective subscriber end stations of respective subscribers may be bound; and

information in respective subscriber records provide respective criteria for selecting between multiple respective network domains for a respective subscriber.

29. (Currently Amended) A subscriber management system comprising:

a network device including an electronic memory encoded with multiple respective virtual ~~network machines~~ routers in the memory, said respective virtual ~~network machines~~ routers including corresponding respective network databases which include respective control information ~~that respectively imparts router functionality to corresponding respective virtual network machines~~, said respective virtual ~~network machines~~ routers respectively including at least one respective network interface to a respective network domain;

respective subscriber records in an electronic memory that include respective information as to network domains to which respective subscriber end stations of respective subscribers may be bound;

multiple respective sub-interface data structures in the electronic memory respectively associated with respective subscribers;

a computer program in electronic memory that searches respective subscriber records to identify respective network domains that may be accessed by respective subscriber ends stations of respective subscribers; and

respective binding data structures that respectively bind respective sub-interface data structures associated with respective subscribers to respective network interfaces to respective network domains identified from searching respective subscriber records.

30. (Original) The system of claim 29 wherein,

information in respective subscriber records identify multiple respective possible network domains to which respective subscriber end stations of respective subscribers may be bound; and

information in respective subscriber records provide respective criteria for selecting between multiple respective network domains for respective subscribers.

31. (New) A network device comprising:

at least one processor;

memory;

I/O;

at least one virtual bridge in the memory, said at least one first virtual bridge including a first network interface;

a first sub-interface data structure in the memory; and

a first binding data structure in the memory which binds the first network interface to the first sub-interface data structure.

32. (New) The network device of claim 31 wherein,

the first network interface is a layer 2 network interface;

the first sub-interface data structure is a layer 2 interface data structure; and

the first binding data structure is layer 2/2 binding structure which binds the first layer 3 network interface to the layer 2 interface data structure.

33. (New) An apparatus comprising:

a single network device including,

a set of one or more processors;

a first physical interface, the first physical interface coupled to a network;

and

a machine-readable medium having stored therein a set of instructions to cause the set of one or more processors to instantiate a first virtual router comprising a network interface and a first database, to instantiate a second virtual router comprising a network interface and a second database, and to bind with a data structure the first virtual

router network interface to the first physical interface, wherein the first virtual router routes packets according to the first database within a first network domain through the first virtual router network interface and the first physical interface, the second virtual router routes packets according to the second database within a second network domain.

34. (New) The apparatus of claim 33, further comprising:

a second physical interface, the second physical interface coupled to the network, wherein the set of instructions further causes the single network device to the second physical interface and the second virtual router routes packets through the second virtual router network interface and the second physical interface.

35. (New) An apparatus comprising:

a single network device including,

a set of one or more processors; and

a machine-readable medium having stored therein a set of instructions to cause the set of one or more processors to instantiate a first virtual router comprising a network interface and a first database, to instantiate a second virtual router comprising a network interface and a second database, and to bind with a data structure the first virtual router network interface to a first virtual circuit, wherein the first virtual router routes packets according to the first database within a first network domain through the first virtual router network interface and the first virtual circuit and the second virtual router routes packets according to the second database within a second network domain.

36. (New) The apparatus of claim 35, further comprising:

a second virtual circuit, the second virtual circuit coupled to the network, wherein the set of instructions further causes the single network device to the second virtual circuit and the second virtual router routes packets through the second virtual router network interface and the second virtual circuit.

37. (New) An apparatus comprising:

a single network device including,

a set of one or more processors; and

a machine-readable medium having stored therein a set of instructions to cause the single network device to instantiate a first virtual bridge comprising a network interface and a first database, to instantiate a second virtual bridge comprising a network interface and a second database, and to bind with a data structure the first virtual bridge network interface to a first virtual circuit, wherein the first virtual bridge switches packets according to the first database within a first network domain through the first virtual bridge network interface and the first virtual circuit and the second virtual bridge switches packets according to the second database within a second network domain.

38. (New) The apparatus of claim 37, further comprising:

a second virtual circuit, the second virtual circuit coupled to the network, wherein the set of instructions further causes the single network device to the second virtual

circuit and the second virtual bridge switches packets through the second virtual bridge network interface and the second virtual circuit.

39. (New) An apparatus comprising:

a single network device including,

a set of one or more processors;

a first plurality of ports to communicate packets of a plurality of subscriber;

a second plurality of ports to communicate packets; and

a machine-readable medium having stored therein a set of instructions to cause the set of processors to,

instantiate a plurality of virtual network machines, wherein the plurality of virtual network machines are virtually independent but share a set of physical resources within the single network device, wherein each of the plurality of virtual network machines is one of a virtual router and a virtual bridge, and wherein each of the plurality of virtual network machines belong to a network domain,

receive subscriber records associated with the plurality of subscribers, wherein each of the plurality of subscribers are associated with a virtual circuit on one of the first plurality of ports, wherein each of the first and second plurality of ports is associated with one or more sub-interfaces, and wherein each of the virtual circuits is associated with one



the sub-interfaces associated with the one of the first plurality of ports that the virtual circuit is on, and

dynamically bind a set of one or more network interfaces of each of the virtual network machines to a set of one or more of the sub-interfaces, such that each of the virtual circuits is communicatively coupled with one of said plurality of virtual network machines based on the subscriber record of the subscriber associated with that virtual circuit and such that at least some of the virtual network machines are communicatively coupled to one of the second plurality of ports, wherein the bindings are represented with a plurality of data structures.

40. (New) The apparatus of claim 39, wherein the set of instructions further causes the set of processors to retrieve the subscriber records from a server that runs authentication, authorization, and accounting protocols.

41. (New) The apparatus of claim 39, wherein the set of instructions further causes the set of processors to change the binding of one of the virtual circuits to a different one of said plurality of virtual network machines, wherein the binding change is based on the subscriber's subscriber record.

42. (New) The apparatus of claim 41, wherein the binding change is based on time of day.

43. (New) The apparatus of claim 39, wherein the set of instruction further causes the set of processors to,

bind one of the network interfaces associated with a first of the plurality of virtual network machines to a sub-interface for a first virtual circuit associated with a first port of one of the first and second plurality of ports, and

bind one of the network interfaces associated with a second of the plurality of virtual network machines to a sub-interface for a second virtual circuit associated with the first port.

44. (New) The apparatus of claim 39, wherein the set of instruction further causes the set of processors to,

bind one of the network interfaces associated with a first of the plurality of virtual network machines to a sub-interface for a first virtual circuit associated with a first port of one of the first and second plurality of ports, and

bind another one of the network interfaces associated with the first of the plurality of virtual network machines to a sub-interface for a second virtual circuit associated with the first port.

45. (New) The apparatus of claim 39, wherein the set of instruction further causes the set of processors to forward, within the network domains to which the virtual network

machines belong, packets received over the virtual circuits communicatively coupled with the virtual network machines out the second plurality of ports.

46. (New) The apparatus of claim 45, wherein the second plurality of ports is communicatively coupled to different ones of service providers and different virtual network machines have access to the different ones of the service providers.

### **REMARKS**

Claims 6-30 were pending at last examination. Claims 6, 8, 10, 18, and 21-24 have been amended. Claims 31 and 32 have been added. No claims were canceled.

#### **Rejections under 35 USC §103(a)**

Applicant's claims 6-30 have been rejected under 35 U.S.C. §103(a) as being obvious over U.S. Patent No. 6,061,349 issued to Coile et al. in view of Cisco et al ("Cisco Radius"). Coile qualifies as prior art only under 35 U.S.C. §102(e) because it issued after Applicant's effective filing date. Applicant does not admit Coile is prior art and reserves the right to swear behind the reference at a later date.

Coile discloses using virtual machines to distribute web requests among a number of physical machines (Coiles, Abstract). A local director intercepts the web requests for different web sites (Coiles, Col. 5, lines 40-50). The local director translates and directs these requests with one or more virtual machines to a local web server that actually handles the web request for the specific web site (Coiles, Col. 5, lines 40-50). The local director handles the different web requests with the virtual machine associated with each web site (Coiles, Col. 5, lines 28-40). Coiles defines a virtual machine as a machine corresponding to a destination IP address where no physical machine actually exists (Coiles, Col. 5, lines 28-40). However, because the local director only translates and directs web requests to local web servers, a router is still required (Coiles, Figure 3, router 304).

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Cisco Radius discloses configuring a router to transmit all outgoing RADIUS commands through a specific router interface (Cisco Radius, p.1). Nevertheless, Cisco Radius does not teach or suggest a virtual router or bridge.

Applicant respectfully submits that the combination of Coiles' virtual machine and Cisco Radius' RADIUS transmittal interface does not teach or suggest Applicant's independent claims. The combination would have a virtual machine that translates and directs web request to a local web server while forcing RADIUS commands to be transmitted out a particular interface. However, the combination does not teach or suggest a virtual router or a virtual bridge as claimed.

In contrast, Applicant's independent claims 6, 8, 10, 18, 24, and 29 are directed to virtual routers. For example, in claims 6 and 8 as amended, Applicant claims "at least one virtual router in the memory, said at least one first virtual router including a first network interface; a first sub-interface data structure in the memory; and a first binding data structure in the memory which binds the first network interface to the first sub-interface data structure."

As another example, in claim 10 as amended, Applicant claims "providing a network device including an electronic memory encoded with at least one virtual router which includes at least one network interface; providing at least one sub-interface data structure encoded in the electronic memory; and binding the at least one network interface to the at least one sub-interface data structure."

Furthermore, claims 18 as amended requires "providing a network device including an electronic memory encoded with a first virtual router which includes at least

one first network interface and with a second virtual router which includes at least one second network interface; providing at least one first sub-interface data structure encoded in the electronic memory; providing at least one second sub-interface data structure encoded in the electronic memory; binding the at least one first network interface to the at least one first sub-interface data structure; and binding the at least one second network interface to the at least one second sub-interface data structure.”

As another example, claim 24 and 29, as amended, require “providing a network device including an electronic memory encoded with multiple respective virtual routers, said respective virtual routers including respective corresponding network databases which include respective control information, said respective virtual routers respectively each including at least one respective network interface for a respective network domain ...”.

The above quoted limitations are not described or suggested by the combination. While there are various uses for the invention as claimed, several such uses are discussed at p. 19, line 9 – p.23, line 28. Thus, while the invention is not limited to the uses discussed in these pages, it should be understood that the combination of Coile and Cisco Radius does not enable these uses and the above quoted limitations do.

For at least these reasons, Applicant respectfully submits that the independent claims are allowable. The Applicant respectfully submits that the dependant claims are allowable for at least the reason that they are dependent on an allowable independent claim.

### New Claims

New claims 31-42 have been added. Applicant respectfully submits that the new claims are in condition for allowance. As stated above, the combination does not teach or suggest a virtual router or bridge as claimed. In contrast, new independent claim 31 requires “at least one virtual bridge in the memory, said at least one first virtual bridge including a first network interface; a first sub-interface data structure in the memory; and a first binding data structure in the memory which binds the first network interface to the first sub-interface data structure.”

Furthermore, claim 33, 35, and 37 requires “instantiate a first virtual router comprising a network interface and a first database, to instantiate a second virtual router comprising a network interface and a second database ...”.

In addition, claim 39 requires “instantiate a plurality of virtual network machines each comprising a network interface, wherein the plurality of virtual network machines are virtually independent but share a set of physical resources within the single network device and each of the plurality of virtual network machines is one of a virtual router and a virtual bridge ...”.

The above quoted limitations are not described or suggested by the combination. While there are various uses for the invention as claimed, several such uses are discussed at p. 19, lines 10-25, p. 20, lines 15–25, and p. 23, lines 1-28. Thus, while the invention is not limited to the uses discussed in these pages, it should be understood that the combination of Coile and Cisco Radius does not enable these uses and the above quoted limitations do. Furthermore, claim 32 is allowable because it depends from claim 31.

**SUMMARY**

Reconsideration of this application is respectfully requested. Claims 6-30 remain in the application. Claims 31 and 32 have been added. No claims have been amended. No claims have been canceled.

*Invitation for a telephone interview*

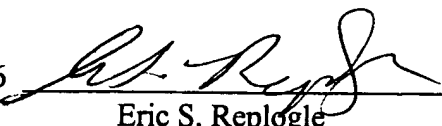
The Examiner is invited to call the undersigned at 408-720-8300 (Pacific Time) if there remains any issue with allowance of this case.

*Charge our Deposit Account*

Please charge any shortage to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

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